

# Nonparametric regression with right-censored covariate via conditional density function

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## Abstract

Censoring often occurs in data collection. This article, considers nonparametric regression when the covariate is censored under general settings. In contrast to censoring in the response variable in survival analysis, regression with censored covariates is more challenging but less studied in the literature, especially for dependent censoring. We propose to estimate the regression function using conditional hazard rates. The asymptotic normality of our proposed estimator is established. Both theoretical results and simulation studies demonstrate that the proposed method is more efficient than the estimation based on complete observations and other methods, especially when the censoring rate is high. We illustrate the usefulness of the proposed method using a data set from the Framingham heart study and a data set from a randomized placebo-controlled clinical trial of the drug D-penicillamine.